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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,921	11/09/2001	Chunzeng Li	528.001	1030

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EXAMINER

OLSEN, KAJ K

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 05/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/052,921	<b>Applicant(s)</b> LI ET AL.	
	<b>Examiner</b> Kaj K. Olsen	<b>Art Unit</b> 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 26-42 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 26-36 is/are allowed.  
6) ☒ Claim(s) 37-39 and 42 is/are rejected.  
7) ☒ Claim(s) 40, 41 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 37-39 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horrocks (or Horrocks in view of either the admitted prior art or Wipf) in further view of Kwak et al (USP 5,202,004).
3. Horrocks discloses a scanning electrochemical potential microscope that comprises a sample support (a gold microdisc) that accommodates a sample of urease in a polar solution of water. Horrocks discloses a probe having a tip including a distal end disposed a perpendicular distance from the surface and a potential measuring device electrically coupled to the tip that measures a potential. See fig. 1 and Introduction. With respect to the formation of a potential gradient, it is only necessary for the structure of Horrocks to be capable of supporting a potential gradient, which the structure of Horrocks would clearly be capable of doing. In addition, it appears that fig. 2 and 3 evidence that a potential gradient has been established between the sample and the tip. Horrocks did not explicitly recite the presence of a feedback circuit to control tip-sample separation in response to a change in potential. However, it is conventional in the SECM art to utilize feedback control of the tip-sample separation. In particular, Kwak teaches a number of modes for operating a SECM including a mode where the measured signal is relied on to control the tip-sample separation such that the contours of the sample surface can be

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monitored and followed. See col. 6, lines 9-54. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Kwak for the microscope of Horrocks so that the tip-sample separation can be accurately controlled.

### ***Response to Arguments***

4. Applicant's arguments filed 3-17-2006 have been fully considered but are only partially persuasive. In particular, the examiner will withdraw the rejection of claims 26-36 because claim 26 requires a potential measuring device that measures a potential across said potential gradient where the potential gradient was defined earlier as being a gradient at an electrical double layer. Because claim 26 both specifies that the probe be located in the electrical double layer and that the measuring device measure a potential at a gradient formed by the electrical double layer, this would read free of the examiner's suggestion that Horrocks be given scanning structure that would allow it to probe into the electrical double layer. Even if Horrocks could locate its probe at such a distance, Horrocks give no suggestion of actually measuring any potential gradient formed by the electrical double layer, nor would it have been obvious to do so because Horrocks only wants to approach the immobilized enzyme on the surface of the gold sample. The examiner has also withdrawn the outstanding rejection of claims 40 and 41 for these same reasons.

5. With respect to applicant's arguments 37-39 and 42, applicant urges that Kwak teaches neither a) measuring potential across a potential gradient between the probe and sample when the probe is in the electrical double layer nor b) using potential as a control parameter in the feedback loop. With respect to a), claim 37 does not require this. Nowhere does claim 37

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specify anything concerning the probe being in the electrical double layer. Dependent claim 40 specifies this, but the examiner has withdrawn the rejection of claim 40. Claim 37 does specify a gradient, but doesn't specify the nature of that gradient nor does claim 37 specify that the probe must be in the electrical double layer in contrast to allowed claim 26. With respect to b), this argument ignores the fact that Horrocks is the primary teaching in this rejection and Horrocks is relying on potentiometric control of the probe. See p. 1116, first column of Horrocks where they describe using the potential measurement as a means to locate the desired distance to place the scanning probe at (see sentence beginning "[t]he tip was moved" on p. 1116. The purpose of the Kwak teaching is that measured signal feedback can be utilized to control position of the probe over the sample surface. Applicant also urges that Horrocks is based on measured current and not potential. It is unclear how applicant came to this conclusion considering that fig. 2, 3 4A, 5A and 6 all show the use of potential measurements.

***Allowable Subject Matter***

6. Claims 26-36 are allowed.
7. Claims 40 and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. A discussion of the reasons for allowable subject matter can be found in the response to the applicant's arguments above.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Thursday from 5:30 A.M. to 3:00 P.M. and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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May 25, 2006



**KAJ K. OLSEN**  
**PRIMARY EXAMINER**